



## UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1400  
Alexandria, Virginia 22313-1400  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/075,602	02/15/2002	Jeffrey Heng	015290-592	1155

7590

01/22/2004

Peter K. Skiff  
BURNS, DOANE, SWECKER & MATHIS, L.L.P.  
P.O. Box 1404  
Alexandria, VA 22313-1404

EXAMINER

UMEZ HIRONIMI, LYNETTE T

ART UNIT

PAPER NUMBER

1765

DATE MAILED: 01/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Advisory Action

Application No.

10075,602

Applicant(s)

HUNG ET AL.

Examiner

Lynette T. Umez-Eronini

Art Unit

1765

--The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

THE REPLY FILED FAILS TO PLACE THIS APPLICATION IN CONDITION FOR ALLOWANCE. Therefore, further action by the applicant is required to avoid abandonment of this application. A proper reply to a final rejection under 37 CFR 1.113 may only be either: (1) a timely filed amendment which places the application in condition for allowance; (2) a timely filed Notice of Appeal (with appeal fee); or (3) a timely filed Request for Continued Examination (RCE) in compliance with 37 CFR 1.114.

## PERIOD FOR REPLY [check either a) or b)]

- a) ☐ The period for reply expires \_\_\_\_\_ months from the mailing date of the final rejection.  
 b) ☒ The period for reply expires on: (1) the mailing date of this Advisory Action, or (2) the date set forth in the final rejection, whichever is later. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of the final rejection.  
 ONLY CHECK THIS BOX WHEN THE FIRST REPLY WAS FILED WITHIN TWO MONTHS OF THE FINAL REJECTION. See MPEP 706.07(f).

Extensions of time may be obtained under 37 CFR 1.136(a). The date on which the petition under 37 CFR 1.136(a) and the appropriate extension fee have been filed is the date for purposes of determining the period of extension and the corresponding amount of the fee. The appropriate extension fee under 37 CFR 1.17(a) is calculated from: (1) the expiration date of the shortened statutory period for reply originally set in the final Office action; or (2) as set forth in (b) above, if checked. Any reply received by the Office later than three months after the mailing date of the final rejection, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

1. ☐ A Notice of Appeal was filed on \_\_\_\_\_. Appellant's Brief must be filed within the period set forth in 37 CFR 1.192(a), or any extension thereof (37 CFR 1.191(d)), to avoid dismissal of the appeal.  
 2. ☐ The proposed amendment(s) will not be entered because:  
 (a) ☐ they raise new issues that would require further consideration and/or search (see NOTE below);  
 (b) ☐ they raise the issue of new matter (see Note below);  
 (c) ☐ they are not deemed to place the application in better form for appeal by materially reducing or simplifying the issues for appeal; and/or  
 (d) ☐ they present additional claims without canceling a corresponding number of finally rejected claims.

NOTE: \_\_\_\_\_

3. ☐ Applicant's reply has overcome the following rejection(s): \_\_\_\_\_.  
 4. ☐ Newly proposed or amended claim(s) \_\_\_\_\_ would be allowable if submitted in a separate, timely filed amendment canceling the non-allowable claim(s).  
 5. ☒ The a) ☐ affidavit, b) ☐ exhibit, or c) ☒ request for reconsideration has been considered but does NOT place the application in condition for allowance because: See Continuation Sheet.  
 6. ☐ The affidavit or exhibit will NOT be considered because it is not directed SOLELY to issues which were newly raised by the Examiner in the final rejection.  
 7. ☐ For purposes of Appeal, the proposed amendment(s) a) ☐ will not be entered or b) ☐ will be entered and an explanation of how the new or amended claims would be rejected is provided below or appended.

The status of the claim(s) is (or will be) as follows:

Claim(s) allowed: none.

Claim(s) objected to: none.

Claim(s) rejected: 14, 21 and 28-33.

Claim(s) withdrawn from consideration: 34 and 35.

8. ☐ The drawing correction filed on \_\_\_\_\_, is a) ☐ approved or b) ☐ disapproved by the Examiner.  
 9. ☐ Note the attached Information Disclosure Statement(s) (PTO-1449) Paper No(s). \_\_\_\_\_.  
 10. ☐ Other: \_\_\_\_\_

SUPERVISOR  
 NADINE G. NORTON  
 PRIMARY EXAMINER

RECEIVED  
 10/11/2007  
 10/11/2007

Continuation of 5, does NOT place the application in condition for allowance because:

Applicants traverse the 103 rejection of claims 14, 28, 29, 34, 35, and 21 and 30-33 over Mak et al. (US 5,384,009) and claim 18 over Mak in view of Harshbarger et al. (US 4,208,241). Applicants argue that modifying Mak's etchant by substituting Xe, which has a low ionization potential of 12.1 eV with Ar, which has an ionization potential of 14.0 eV, teaches away from the claimed invention, changes the principle of operation by providing a plasma etching gas formulation that has a higher ionization potential, requires more energy and achieves less selectivity than desired.

Applicant argument is unpersuasive. Comparing the ionization potential of Xe with other noble gases shows they are of the same order of magnitude (electrode potential of Xe = 12.1 eV, Kr = 10.0 eV, Ar = 15.8 eV, and Ne = 21.6 eV). Modifying Mak's Xe with an inert gas such as Ar would have been obvious because noble gases are known to include helium, argon or nitrogen, neon or xenon, which are used as carrier and diluent gases. Hence, it would have been obvious to one having ordinary skill in the art at the time of the claimed invention to replace Mak's xenon with argon since both gases are seen as equivalent: they belong to same chemical family and possess the same chemical properties. Hence, substitution of one for the other would have been obvious for the purpose of providing an inert carrier gas.